

c.) Remarks

Office Action of February 8, 2005

Claims 1-12 are pending. Claims 1-6 are allowed. Claims 7-12 are rejected. The following claim rejection has been entered; applicants respond below.

1) Rejection of claims 7-12 under 35 USC § 103(a) as being unpatentable over U.S. Patent 5,905,258 to Clemmer et al ("Clemmer '258") in view of U.S. Patent 6,229,142 to Bateman et al ("Bateman '142").

1. Rejection of Claims 7-12 under 35 USC § 103(a)

The examiner has rejected claims 7-12 under 35 USC § 103(a) as being unpatentable over Clemmer '258 in view of Bateman '142. For claims 7 and 10, the examiner asserts that Clemmer '258 teaches all of the limitations except for the use of a time offset. The examiner asserts that the use of a time offset would have been obvious through the teachings of Bateman '142 because Bateman '142 teaches the use of a timing controller in communication with a pulse generator and a clock generator that are in communication with the ion source. The examiner asserts that it would have been obvious to one of ordinary skill in the art to apply the teachings of Bateman '142 to those of Clemmer '258 to arrive at the inventions of claims 7 and 10. With regard to claims 8, 9, 11, and 12, the examiner asserts that Clemmer '258 teaches that ion fragmentation can be used in or after an IMS. Applicants respectfully traverse the rejection of claims 7-12 under § 103(a) over Clemmer '258 in view of Bateman '142.

Applicants initially focus on claim 7 and 10, but the arguments provided are also applicable to claims 8, 9, 11, and 12 because these claims depend from base claims 7 and 10. Nowhere does Clemmer '258 teach or suggest the use of a time offset to arrive at the

interleaved instrument and method of the present invention. The examiner asserts in a conclusory manner that "it is obvious that the computer control (38) and grids (86, 94, and 102) act to offset the times of the generated ions that are extracted." Nowhere in Clemmer '258 is this taught or suggested. Clemmer '258 and Bateman '142 deal only with chemical inputs into a TOF-MS which are non time-varying or very slowly time-varying when compared to the "fill time" of the TOF-MS extraction plates (usually around 5-50 microseconds). Thus they do not teach or suggest an interleaved timing scheme; non-limiting examples of such being disclosed in the instant specification (see e.g., Figures 2 and 3 and the corresponding discussion in the instant specification). In this regard, the instant application is dealing with a different problem than are Clemmer '258 and Bateman '142. The present invention is distinguishable over the prior art in that it allows for the ability to repetitively sample time-varying inputs into the mass spectrometer whose rate of change is comparable to the filling time of the orthogonal extraction plates of the TOF-MS whether this TOF-MS is of the design of Bateman '142, of Clemmer '258, or of any other design such as that disclosed in the instant specification. Neither Bateman '142 nor Clemmer '258 teach or suggest the detection of such fast process by any method, let alone by position sensitive detection (e.g. multiple anode detector readout), or by single anode detection coupled with the interleaving described by way of example in Figures 2 and 3 in the instant specification and the corresponding discussion, or by a combination of such interleaving coupled with a position sensitive detector.

The examiner asserts that Bateman '142 teaches the use of a timing controller (30) in communication with a pulse generator (22) and a clock generator (29) that are in communication with the ion source (2), and that these generators will generate pulses in such a way that bunches of ions are repeatedly ejected. Applicants note that component (30) in Bateman '142 is described as a digital computer and not as a timing controller. Furthermore,

the examiner fails to demonstrate precisely where Bateman '142 teaches the ejection of ions according to a predetermined sequence which is defined by time offsets. The examiner merely assumes and concludes that this is taught by Bateman '142. In fact, Bateman '142 never discusses, teaches, or suggests this (Bateman '142 does not teach this in the passage referred to by the examiner or anywhere else in Bateman '142). Again, the examiner follows his discussion of Bateman '142 with the conclusory assertion that "it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teaching of Clemmer '258 so that a predetermined sequence is used because this will lead to an increased dynamic range of the detector." As discussed above, the examiner never shows that Bateman '142 teaches or suggests the use of a predetermined sequence which is defined by time offsets. Even if the examiner had shown this teaching in Bateman '142 (which he did not, because it is not present in Bateman '142), the examiner fails to show a suggestion for the combination of Bateman '142 and Clemmer '258. Even if we assume that the Bateman '142 reference teaches what the examiner asserts that it teaches (again, applicants assert that it does not do so), the examiner is merely engaging in the hindsight reconstruction of the invention by taking selected pieces of prior art references absent a suggestion to combine, and combining them to arrive at a determination of obviousness. This is not a proper rejection under § 103(a) as held by the Federal Circuit in *In re Fritch*, 972 F.2d 1260, 23 USPQ2d 1780 (Fed. Cir. 1992). In *Fritch*, the Federal Circuit held,

Obviousness cannot be established by combining the teachings of the prior art to produce the claimed invention, absent some teaching or suggestion supporting the combination. Under section 103, teachings of references can be combined only if there is some suggestion or incentive to do so. (citation omitted). Although couched in terms of combining teachings found in the prior art, the same inquiry must be carried out in the context of a purported obvious "modification" of the prior art. **The mere fact that the prior art may be modified in the manner suggested by the Examiner does not make the modification obvious unless the prior art suggested the desirability of the modification.** (emphasis added; citation omitted).

Here, the Examiner relied upon hindsight to arrive at the determination of obviousness. It is impermissible to use the claimed invention as an instruction manual or "template" to piece together the teachings of the prior art so that the claimed invention is rendered obvious. (citations omitted). This court has previously stated that "one cannot use hindsight reconstruction to pick and choose among isolated disclosures in the prior art to deprecate the claimed invention." (citation omitted).

Id., at 1266.

Because the examiner's subsequent rejection of dependent claims 8, 9, 11, and 12 are premised upon the same base rejection as those for independent claims 7 and 10, these dependent claims are also patentable in light of the above arguments.

To summarize, applicants respectfully assert that neither Clemmer '258 nor Bateman '142, taken alone or in combination, teach or suggest the use of a time offset to arrive at the interleaved instrument and method of the present invention. For this reason, neither reference teaches or suggests an instrument having a timing controller activating an ion extractor according to a predetermined sequence or a method which activates the generation and extraction of ions by a timing controller operating according to a predetermined sequence. Using a predetermined sequence which is defined by time offsets in the instrument and method taught and claimed by the applicants was not known to those of ordinary skill in the art at the time the invention was made. The examiner's rejection misconstrues the teachings of the cited references and then combines them using hindsight reconstruction to reject claims 7-12 under § 103(a). This is an improper rejection under § 103(a). Accordingly, applicants respectfully request that the examiner withdraw this rejection.


d.) Conclusions

In light of the Applicants' arguments, applicants assert that the pending claims are in condition for allowance. Applicants respectfully request withdrawal of the outstanding rejections and allowance of the pending claims. If any issues remain outstanding, please contact the undersigned for resolution of the same.

Applicants believe that no fees are associated with the filing of this response. However, if Applicants are in error, the Commissioner is hereby authorized to charge any additional fees associated with this filing from Deposit Account No. 06-2375, under Order No. P02142US2/10102674 from which the undersigned is authorized to draw.

Respectfully submitted,

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